

CLAIMS

1. A hollow waveguide, the waveguide comprising a wall having plural pegs thereon which project into the hollow interior of the waveguide such that the waveguide propagates electromagnetic waves only below a certain frequency, the surface of each of the pegs being substantially free of discontinuity.
2. A waveguide according to claim 1, wherein the surface of each the pegs is substantially free of concavities.
3. A waveguide according to claim 1 or claim 2, wherein at least some of the pegs have a substantially circular cross-sectional shape.
4. A waveguide according to claim 3, wherein each peg has a substantially circular cross-sectional shape.
5. A waveguide according to any of claims 1 to 3, wherein at least some of the pegs have a substantially elliptical cross-sectional shape.
6. A waveguide according to any of claims 1 to 5, wherein at least some of the pegs have a domed head.
7. A waveguide according to any of claims 1 to 6, wherein at least one peg has a convex fillet around its base at the junction between the peg and the wall.
8. A waveguide according to any of claims 1 to 7, comprising a second wall opposing the first wall and spaced

-19-

therefrom, the face of the second wall that opposes the first wall being substantially planar.

9. A waveguide according to any of claims 1 to 8, wherein
5 the waveguide is dimensioned to propagate electromagnetic waves having a frequency of at least 10 GHz.

10. A waveguide according to any of claims 1 to 9, wherein
the waveguide is dimensioned to propagate only
10 electromagnetic waves having a frequency less than about 100 GHz.

11. A hollow waveguide, the waveguide comprising a wall
having plural pegs thereon which project into the hollow
15 interior of the waveguide such that the waveguide propagates electromagnetic waves only below a certain frequency, each peg having a convex fillet around its base at the junction between the peg and the wall.

20 12. A hollow waveguide, the waveguide comprising a wall having plural pegs thereon which project into the hollow interior of the waveguide such that the waveguide propagates electromagnetic waves only below a certain frequency, each peg having a convex head.

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13. Transmitter-receiver apparatus, the apparatus comprising at least one antenna for transmitting and receiving signals, an electronics module for providing signals to the antenna for transmission and for receiving
30 signals received by the antenna, and a hollow waveguide according to any of claims 1 to 12 selectively coupling the electronics module to the antenna.

-20-

14. A method of manufacture of a hollow waveguide, the waveguide comprising a wall having plural pegs thereon which project into the hollow interior of the waveguide such that the waveguide propagates electromagnetic waves only below a certain frequency, the surface of each of the pegs being substantially free of discontinuity, the waveguide being formed from a waveguide material, the method comprising:

disposing a quantity of waveguide material into a mould tool having plural recesses in a surface therein, wherein each recess corresponds to a said peg; moulding the material; and, removing the hollow waveguide from the mould.

15. A method according to claim 14, wherein the waveguide material comprises a plastics material.

16. A method according to claim 15, wherein said plastics material is metallised plastics material.

17. A method according to any of claims 14 to 16, wherein said moulding is pressure die-casting.

18. A method of manufacture of a hollow waveguide, the waveguide comprising a wall having plural pegs thereon which project into the hollow interior of the waveguide such that the waveguide propagates electromagnetic waves only below a certain frequency, each peg having a convex fillet around its base at the junction between the peg and the wall, the waveguide being formed from a waveguide material, the method comprising:

disposing a quantity of waveguide material into a
mould tool having plural recesses in a surface therein,
wherein each recess corresponds to a said peg;

moulding the material; and,

5 removing the hollow waveguide from the mould.

19. A method of manufacture of a hollow waveguide, the
waveguide comprising a wall having plural pegs thereon
which project into the hollow interior of the waveguide
10 such that the waveguide propagates electromagnetic waves
only below a certain frequency, each peg having a convex
head, the waveguide being formed from a waveguide material,
the method comprising:

disposing a quantity of waveguide material into a
15 mould tool having plural recesses in a surface therein,
wherein each recess corresponds to a said peg;

moulding the material; and,

removing the hollow waveguide from the mould.